CLASS VI SATURATION HEIGHT FUNCTION

ELK HILLS A1-A2 PROJECT

Saturation Height Function

Initial hydrocarbon saturation is modeled using centrifuge, porous plate, and mercury injection core analysis results. Data from 5 wells was compiled and used to derive a single equation across the range of rock quality sampled. The height function is derived from permeability, which is a function of porosity and clay volume and therefore believed to be the best representation of rock quality. Figure 1 shows saturation versus permeability. Figure 2 shows well 357-7R saturation from the saturation function.

Saturation Height Function = (1.48137 - 0.5747 * Log((8860+TVDSS) * 0.06503) - 0.0671 * Log((8860+TVDSS)*0.06503)^2 + 0.0316 * Log((8860+TVDSS) * 0.06503)^3) / (KA^0.17271)

Figure 1: Plot of saturation versus permeability for various TVDSS depths.

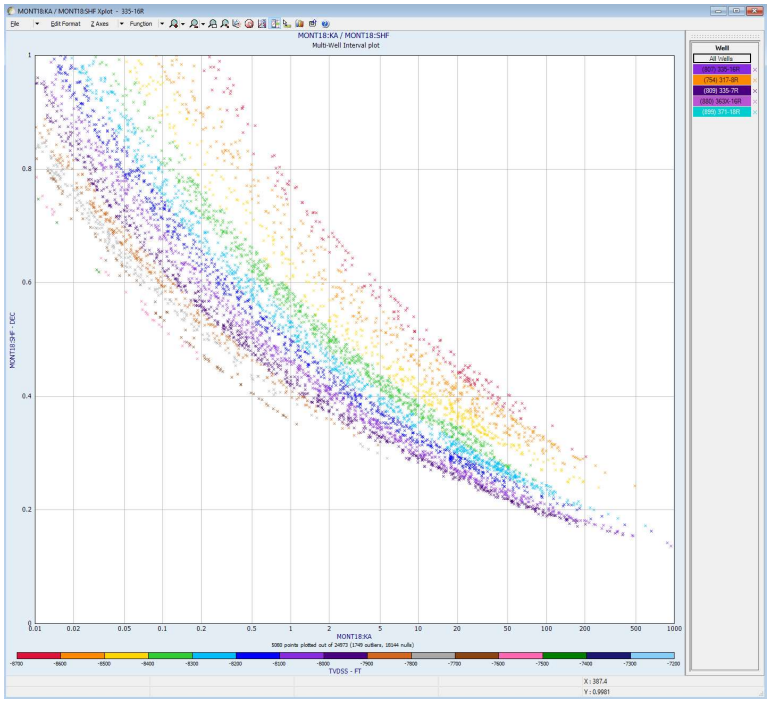

Figure 2. Example log plot of saturation height function compared to log-derived water saturation for 357-7R.